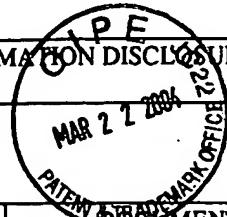


Section 2. Form PTO - 1449 (Modified) (ATTACHMENT)

| | | | |
|--|--|-----------------------------|--------------------------|
| FORM PTO-1449 U.S. DEPT. OF COMMERCE (Modified) PATENT AND TRADEMARK OFFICE | | ATTY DOCKET NO. QIL-1DIV | SERIAL NO. 10/694,687 |
| | | APPLICANT Ledentsov | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | FILING DATE 10/27/03 | GROUP 2802 |



U.S. PATENT DOCUMENTS

| Exam Initial | DOCUMENT NUMBER | DATE | PATENTEE | CLASS | SUB | FILING DATE IF APPROPR |
|--------------|-----------------|----------|---------------------|-------|---------|------------------------|
| | | | See Attached | | | |
| MG | BG 5,210,051 | 05/11/93 | Carter Jr. | 438 | 100 22 | |
| MG | BH 5,290,393 | 03/01/94 | Nakamura | 156 | 613 | |
| MG | BI 5,306,662 | 04/26/94 | Nakamura et al. | 438 | 100 509 | |
| MG | BJ 5,741,724 | 04/21/98 | Ramdani et al. | 438 | 100 46 | |
| MG | Bk 5,838,029 | 11/17/98 | Shakuda | 257 | 190 | |
| MG | BL 5,928,421 | 07/27/99 | Yuri et al. | 117 | 97 | |
| MG | BM 5,972,801 | 10/26/99 | Lipken et al. | 438 | 770 | |
| MG | BN 6,087,681 | 07/11/00 | Shakuda | 257 | 103 | |
| MG | BO 6,153,010 | 11/28/00 | Kiyoku et al. | 117 | 95 | |
| MG | BP 6,160,833 | 12/12/00 | Floyd et al. | 372 | 96 | |
| MC | BQ 6,177,688 | 01/23/01 | Linthicum | 257 | 77 | |
| MG | BR 6,194,742 | 02/27/01 | Kern et al. | 257 | 94 | |
| MG | BS 6,287,947 | 09/11/01 | Ludowise et al. | 438 | 606 | |
| MG | BT 6,498,111 | 12/24/02 | Kapolnek et al. | 438 | 762 | |
| MG | BU 6,582,986 | 06/24/03 | Kong et al. | 438 | 48 | |
| MG | BV 6,534,797 | 03/18/03 | Edmond et al. | 257 | 97 | |
| MG | BW 6,537,513 | 03/25/03 | Amano et al. | 423 | 328.2 | |
| MG | BX 6,602,763 | 08/05/03 | Davis et al. | 438 | 481 | |
| MG | BY 6,627,974 | 09/30/03 | Kozaki et al. | 257 | 623 | |
| MG | BZ 6,627,520 | 09/30/03 | Kozaki et al. | 438 | 479 | |
| MG | CA 6,630,691 | 10/07/03 | Mueller-Mach et al. | 257 | 84 | |
| MG | CB 6,630,692 | 10/7/03 | Goetz et al. | 257 | 94 | |
| MG | CC 2002/0046693 | 04/25/02 | Kiyoku et al. | 117 | 8 | |
| MG | CD 2003/0037722 | 02/27/03 | Kiyoku et al. | 117 | 84 | |
| MG | CE 2003/0160232 | 08/28/03 | Kozaki et al. | 257 | 22 | |
| MG | CF 5,482,890 | 01/09/96 | Liu et al. | 438 | 100 494 | |
| MG | CG 5,888,885 | 03/30/99 | Xie | 438 | 493 | |

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

| Exam Initial | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUB | TRANSLATION YES NO |
|--------------|-----------------|------|---------|-------|-----|----------------------|
| | | | | | | |

OTHER PRIOR ART

| | | |
|--------------|----|---|
| Exam Initial | | Author, Title, Date, Pertinent Pages, Etc |
| MG | CH | J.L. Liu, C.D. Moore, G.D. U'Ren, Y.H. Luo, Y. Lu, G. Lin, S.G. Thomas, M.S. Goorsky, K.L. Wang; "A surfactant-mediated relaxed Si ₃ Ge ₂ graded layer with a very low threading dislocation density and smooth |

maria Guenro

3-3-05

| | | |
|---------------------|----|--|
| | | <i>surface</i> ", Applied Physics Letters, Vol. 75 (11), pp. 1586-1588 (1999). |
| MG | CJ | Y. Takano, K. Kobayashi, H. Iwahori, N. Kuwahara, S. Fuke, S. Shirakata; <i>"Low temperature growth of InGaAs layers on misoriented GaAs substrates by metalorganic vapor phase epitaxy"</i> , Applied Physics Letters, Vol. 80 (12), pp. 2054-2056 (2002). |
| MG | CK | M.J. Manfra, N.G. Weimann, J.W.P. Hsu, L.N. Pfeiffer, K.W. West, S.N.G. Chu; <i>"Dislocation and morphology control during molecular-beam epitaxy of AlGaN/GaN heterostructures directly on sapphire substrates"</i> ; Applied Physics Letters 81 (8), pp. 1456-1458 (2002). |
| MG | CL | O. Conteras, F.A. Ponce, J. Christen, A. Dadgar, A. Krost; <i>"Dislocation annihilation by silicon delta-doping in GaN epitaxy on Si"</i> ; Applied Physics Letters 81 (25), pp. 4712-4714 (2002). |
| MG | CM | A.D. Capewell, T.J. Grasby, T.E. Whall, E.H.C. Parker; <i>"Terrace grading of SiGe for high quality virtual substrates"</i> ; Applied Physics Letters 81 (25), pp. 4775-4777 (2002). |
| MG | CN | <i>"Vertical-Cavity Surface-Emitting Lasers: Design, Fabrication, Characterization, and Applications"</i> ; by C.W. Wilmsen, H. Temkin, L.A. Coldren (editors), Cambridge University Press, 1999 |
| MG | CO | N.N. Ledentsov, V.A. Shchukin; <i>"Novel Concepts for Injection Lasers"</i> , Optical Engineering, Vol. 41 (12), pp. 3193-3203 (2002). |
| MG | CP | N.N. Ledentsov et al., " 1.3 um Luminescence and Gain From Defect-Free InGaAs-GaAs Quantum Dots Grown By Metal-Organic Chemical Vapor Deposition." Semicond. Sci. Technol. 15, 2000, pp. 604-607 |
| EXAMINER | | DATE CONSIDERED |
| <i>Yana Guevara</i> | | 3-3-05 |
| | | |

O
MAR 22 2004
JC22
PTO - 1449 (Modified) (ATTACHMENT)

Section 2. Form PTO - 1449 (Modified) (ATTACHMENT)

| | | |
|--|----------------------------------|------------------------|
| FORM PTO-1449 U.S. DEPT. OF COMMERCE (Modified) PATENT AND TRADEMARK OFFICE | ATTY DOCKET NO. QIL-1 | SERIAL NO. 10694687 |
| | APPLICANT Ledentsov | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | FILING DATE 05/04/01 10/27/03 | GROUP 2822 |

U.S. PATENT DOCUMENTS

| Exam Initial | DOCUMENT NUMBER | DATE | PATENTEE | CLASS | SUB | FILING DATE IF APPROPR |
|--------------|-----------------|----------|-----------------------|-------|-----|------------------------|
| MG | AA 4,806,996 | 02/21/89 | Luryi, S. | 357 | 16 | |
| MG | AB 5,019,874 | 05/28/91 | Inoue et al | 357 | 16 | |
| MG | AC 5,075,744 | 12/24/91 | Tsui, R.K. | 357 | 22 | |
| MG | AD 5,091,767 | 02/25/92 | Bean et al | 357 | 60 | |
| MG | AE 5,156,995 | 10/20/92 | Fitzgerald Jr., et al | 438 | 494 | |
| MG | AF 5,208,182 | 05/04/93 | Narayan et al | 438 | 509 | |
| MG | AG 5,719,894 | 02/17/98 | Jewell et al | 372 | 45 | |
| MG | AH 5,859,864 | 01/12/99 | Jewell, J. | 372 | 45 | |
| MG | AI 5,927,995 | 07/27/99 | Chen et al | 438 | 517 | |
| MG | AJ 5,960,018 | 09/28/99 | Jewell et al | 372 | 45 | |

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

| Exam Initial | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUB | TRANSLATION YES NO |
|--------------|-----------------|------|---------|-------|-----|----------------------|
| | A | | | | | |

OTHER PRIOR ART

| Exam Initial | Author, Title, Date, Pertinent Pages, Etc | |
|--------------|---|---|
| MG | AK | Chen, Y. et al, 1995, "Nucleation of misfit dislocations in $In_{0.2}Ga_{0.8}As$ epilayers grown on GaAs substrates", Appl. Phys. Lett 66 (4) 499-501 |
| MG | AL | Huffaker, D.L. et al, 1998, "1.3 μm room-temperature GaAs-based quantum-dot laser", Appl Phys. Lett. 73 918, pp 2563-3566 |
| MG | AM | Blum, O. et al, 2000, "Characteristics of GaAsSb Single-Quantum-Well-Lasers Emitting Near 1.3 μm ", IEEE Photonics Technology Letters, Vol. 12, No. 7, pp 771-773. |
| MG | AN | Nakahara, K. et al, 1998, "1.3 μm Continuous-Wave Lasing Operation in GaInNAs Quantum-Well Lasers", IEEE Photonics Technology Letters, Vol 10, No. 4, pp 487-488. |
| MG | AO | Schlenker, D. et al, 1999, "1.17 μm Highly Strained GaInAs-GaAs Quantum-Well Laser", IEEE Photonics Technology Letters, Vol 11, No. 8, pp. 946-948 |
| MG | AP | Lee, B. et al, 1996, "Optical properties of InGaAs linear graded buffer layers on GaAs grown by metalorganic chemical vapor deposition" Appl. Phys. Lett. 68 (21), pp 2973-2975 |
| MG | AQ | Roan, E.J. et al, 1991, "Long-wavelength (1.3 μm) luminescence in InGaAs strained quantum-well structures grown on GaAs", Appl. Phys. Lett. 59 (21), pp 2688-2690. |
| MG | AR | Herman, M.A. et al, 1991, "Heterointerfaces in quantum wells and epitaxial growth processes: Evaluation by luminescence techniques" J. Appl. Phys. 70 (2), pages 52 |

Maria Guenes

3-3-05

| | | |
|----|----|---|
| MG | AS | Elman, B. et al, 1989, "In situ measurements of critical layer thickness and optical studies of InGaAs quantum wells grown on GaAs substrates", Appl. Phys. Letter, 55 (16), pp 1659-1661. |
| MG | AT | Alferov, Zh. et al, 1971, "Investigation of the Influence of the AlAs-GaAs Heterostructure Parameters on the Laser Threshold Current and The Realization of Continuous Emission at Room Temperature", Soviet Physics - Semiconductors, Vol. 4, No. 9, pp 1573-1575 |
| MG | AU | Alferov, Zh. et al, 1970, "AlAs-GaAs Heterojunction Injection Lasers With A Low Room-Temperature Threshold", Soviet Physics - Semiconductors, Vol. 3, No. 9, pp 1107-1110 |
| MG | AV | Gourley, P.L. et al, 1988, "Controversy of Critical Layer Thickness for InGaAs/GaAs strained-layer Epitaxy", Appl. Phys. Lett. 52 (5), pp 377-379. |
| MG | AW | Tsang, W.T., 1981, "Extension of lasing wavelenghts beyond 0.87 μ m in GaAs/Al _x Ga _{1-x} As double-heterostructure lasers by In incorporation in the GaAs active layers during molecular beam epitaxy", Appl. Phys. Lett. 38 (9), pp 661-663 |
| MG | AX | Hayashi, I. et al, 1970, "Junction Lasers which Operate Continuously At Room Temperature", Applied Physics Letters, Vol. 17, No. 3, pp 109-111 |
| MG | AY | Goldstein, L. et al, 1985, "Growth by molecular beam epitaxy and characterization of InAs/GaAs strained-layer superlattices", Appl. Phys. Lett. 47 (10), pp 1099-1101 |
| MG | AZ | Beanland, R. et al, 1997, "Relaxation of strained epitaxial layers by dislocation rotation, reaction and generation during annealing", Inst. Phys. Conf. Ser. No. 157, pp 145-148 |
| MG | BB | Glas, F. et al, 1987, "TEM study of the molecular beam epitaxy island growth of InAs on GaAs", Inst. Phys. Conf. Ser. No. 87: Section 2, pp 71-76 |

| | |
|--------------|-----------------|
| Yana Guevara | DATE CONSIDERED |
| | 3-3-05 |
| | |

Section 2. Form PTO - 1449 (Modified) (ATTACHMENT)

| | | | |
|--|--|--------------------------------|--------------------------|
| FORM PTO-1449 U.S. DEPT. OF COMMERCE (Modified) PATENT AND TRADEMARK OFFICE | MAR 22 2004 PATENT & TRADEMARK OFFICE U.S. DEPT. OF COMMERCE | ATTY DOCKET NO. QIL-1 | SERIAL NO. 09/651,730 |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | APPLICANT Nikolai Ledentsov | |
| | | FILING DATE May 9, 2001 | GROUP 2820 |

U.S. PATENT DOCUMENTS

| Exam Initial | DOCUMENT NUMBER | DATE | PATENTEE | CLASS | SUB | FILING DATE IF APPROPR |
|--------------|-----------------|------|----------|-------|-----|------------------------|
| | | | | | | |

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

| Exam Initial | DOCUMENT NUMBER | DATE | COUNTRY | CLASS | SUB | TRANSLATION YES NO |
|--------------|-----------------|------|---------|-------|-----|----------------------|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

OTHER PRIOR ART

| Exam Initial | Author, Title, Date, Pertinent Pages, Etc | |
|--------------|---|---|
| MG | BC | Scott A. McHugo and William D. Sawyer 'Impurity decoration of defects in float zone and polycrystalline silicon via chemomechanical polishing" Applied Physics Letters (1993) Volume 62, Issue 20, pp. 2519-2521 |
| MG | BD | B. Shen, X. Y. Zhang, K. Yang, P. Chen, R. Zhang, Y. Shi, Y. D. Zheng, T. Sekiguchi and K. Sumino 'Gettering of Fe impurities by bulk stacking faults in Czochralski-grown silicon" Applied Physics Letters (1997) Volume 70, Issue 14, pp. 1876-1878 |
| MG | BE | M. Herrera Zaldivar, P. Fernandez, and J. Pique 'Study of defects in GaN films by cross-sectional cathodoluminescence" Journal of Applied Physics (1998) -Volume 83, Issue 5, pp. 2796-2799 |
| MG | BF | Ledentsov, N. N. "Long-Wavelength Quantum-Dot Lasers on GaAs substrates: From Media to Device Concepts" IEEE Journal of Selected Topics in Quantum Electronics, Vol. 8, No. 5, September/October 2002 pp. 1015-1024 |

| EXAMINER | DATE CONSIDERED |
|--------------|-----------------|
| Mania Guerro | 3-3-05 |
| | |